

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of extraction of phytosterols, squalene and vitamin E from ~~[[crude]]~~ the palm oil comprising the steps of:

- a) conversion of ~~[[crude]]~~ the palm oil into palm oil methyl esters;
 - b) three stages of short path distillation of ~~[[crude]]~~ the palm oil methyl esters obtained in ~~[[step (a)]]~~ step a) to yield a phytonutrient ~~phytonutrients~~ concentrate;
 - c) saponification of the phytonutrient ~~phytonutrients~~ concentrate from ~~step (b);~~ step b) to give a saponified product;
 - d) crystallization of phytosterols;
 - e) solvent partitioning of vitamin E and squalene;
- wherein each of the three stages of short path distillation produces a distillate and a residue and wherein the third stage short path distillation is carried out on the distillate produced in the second stage short path distillation.

2-7. (Cancelled)

8. (Currently amended) ~~A—method~~ The method as claimed in claim 20, wherein the unsaponifiable matter is mixed with a hydrocarbon solvent, short chain alcohol and water to form a mixture, wherein the hydrocarbon solvent, short chain alcohol and water are in a ratio by volume of ~~[[ratio]]~~ 25:1:1 and wherein the mixture is heated to a temperature of 65°C to 85°C and slowly cooled to a temperature of 10°C to 30°C to crystallize phytosterol ~~phytosterols~~.
9. (Currently amended) ~~A—method~~ The method as claimed in claim 21, wherein the ~~ratio of~~ hydrocarbon solvent ~~to~~ and short chain alcohol used to partition the squalene and the vitamin E ~~is~~ are in a ratio by volume of 5:3.

10. (Cancelled)
11. (Withdrawn) Vitamin E, squalene or phytosterols as extracted as in claim 1.
12. (Currently amended) The method of extraction of phytosterols, squalene and vitamin E from ~~[[crude]]~~ palm oil as recited in claim 1, comprising the steps of:
- i. conversion of ~~[[crude]]~~ palm oil into palm oil methyl esters;
 - ii. the first stage short path distillation is carried out on the ~~[[crude]]~~ palm oil methyl esters obtained in the step i, ~~(i)~~ above at wherein the first stage short path distillation is carried out at a temperature of 70°C to 120°C and pressure between 10 mTorr to 50 mTorr;
 - iii. the second stage short path distillation is carried out on the residue ~~obtained in step (ii) above at obtained in the first stage short path distillation, wherein the second stage short path distillation is carried out at~~ a temperature of 130°C to 200°C and pressure less than 1 mTorr;
 - iv. the third stage short path distillation is carried out on the distillate obtained in the second stage short path distillation, wherein the third stage short path distillation is carried out ~~step (iii)~~ above at a temperature below 120°C and pressure less than 1 mTorr;
 - v. saponification of the residue ~~obtained in step (iv) above~~ the third stage short path distillation to give a saponified product;
 - vi. solvent extraction of unsaponifiable matter from the saponified product obtained in ~~step (v) above~~ step v;
 - vii. mixing the unsaponifiable matter ~~in step (vi) above~~ obtained in step vi with a hydrocarbon solvent, short chain alcohol and water to give a mixture;
 - viii. crystallization of ~~phytosterols~~ phytosterol from the mixture obtained in ~~step (vii) above~~ step vii to give crystallized phytosterol and a remaining mixture;

- ix. separating the crystallized ~~phytosterols~~ phytosterol and drying the remaining mixture to give a dried mixture left is dried;
 - x. mixing the dried mixture obtained in ~~step (ix) above step ix~~ with a hydrocarbon solvent and a short chain alcohol to partition the squalene into a hydrocarbon layer and the vitamin E into an alcohol layer.
13. (Cancelled)
14. (Currently amended) ~~A method~~ The method as claimed in claim 1, wherein a hydrocarbon solvent and a short chain alcohol are used in ~~step (e)~~ step e) to partition the squalene into a hydrocarbon layer and the vitamin E into an alcohol layer.
15. (Currently amended) ~~A method~~ The method as claimed in claim 14, wherein hexane and methanol are used in step e) to partition the squalene into a hexane layer and the vitamin E into a methanol layer.
16. (Currently amended) ~~A method~~ The method as claimed in claim 1, wherein step (b) proceeds as follows:
- a. the first stage short path distillation is carried out on [[crude]] palm oil methyl esters;
 - b. the second stage short path distillation is carried out on the residue of the first stage short path distillation;
 - c. the third stage short path distillation is carried out on the distillate of the second stage short path distillation to yield a phytonutrients concentrate as a residue.
17. (Currently amended) ~~A method~~ The method as claimed in claim 16, wherein the second stage short path distillation is carried out at a temperature of 130°C to 200°C and pressure less than 1 mTorr.

18. (Currently amended) ~~A-method~~ The method as claimed in claim 17, wherein the first stage short path distillation is carried out at a temperature of 70°C to 120°C and pressure between 10 mTorr to 50 mTorr and the third stage short path distillation is carried out at a temperature below 120°C and pressure less than 1 mTorr.
19. (Currently amended) ~~A-method~~ The method as claimed in claim 1, wherein unsaponifiable matter is solvent extracted from the saponified product obtained ~~in step (e) in step c)~~ and phytosterols are crystallized from the unsaponifiable matter.
20. (Currently amended) ~~A-method~~ The method as claimed in claim 19, wherein the unsaponifiable matter is mixed with a hydrocarbon solvent, short chain alcohol and water to give a mixture and crystallizing phytosterols from the mixture to give crystallized phytosterols and a remaining mixture are crystallized from the mixture.
21. (Currently amended) ~~A-method~~ The method as claimed in claim 20, wherein the remaining mixture ~~left after separation of the crystallized phytosterols~~ is dried and then mixed with a hydrocarbon solvent and a short chain alcohol to partition the squalene into a hydrocarbon layer and the vitamin E into an alcohol layer.
22. (Currently amended) ~~A-method~~ The method as claimed in claim 21, wherein hexane and methanol is used to partition the squalene and the vitamin E.
23. (Currently amended) ~~A-method~~ The method as claimed in claim 1, wherein the ~~[[crude]]~~ palm oil is converted directly into palm oil methyl esters.